reddit

3D Snoo

Read Me

Reminder: You may not use the Snoo's head alone (apart from its body).

Legal Stuff!

Contents

What's in this Read Me?

This deck will cover the file setup and the functionality of the rigging controls.

It will not cover:

- **Blender fundamentals**
- **Shaders**
- **Lighting**
- **Animation**
- **Rendering**

PS: The rig UI requires the Bone-Manage Add-On, which will not be included with the Master Snoo Folder. How to Install Add-Ons

PPS: Building this rig was quite the endeavor, It's certainly one of the most sophisticated rigs I've made to date. I'm proud of it, though it's certainly not perfect. I'm positive you'll find bugs, stray quaternions, and who knows what lurking in there. I hope to spend time further refining snoo and updating the file over the next year.

PPPS: Sadly, I'm not a graphic designer, and I sincerely apologize for the state of this Read Me if you go in for that sort of thing. Good luck and have fun!
-Dave

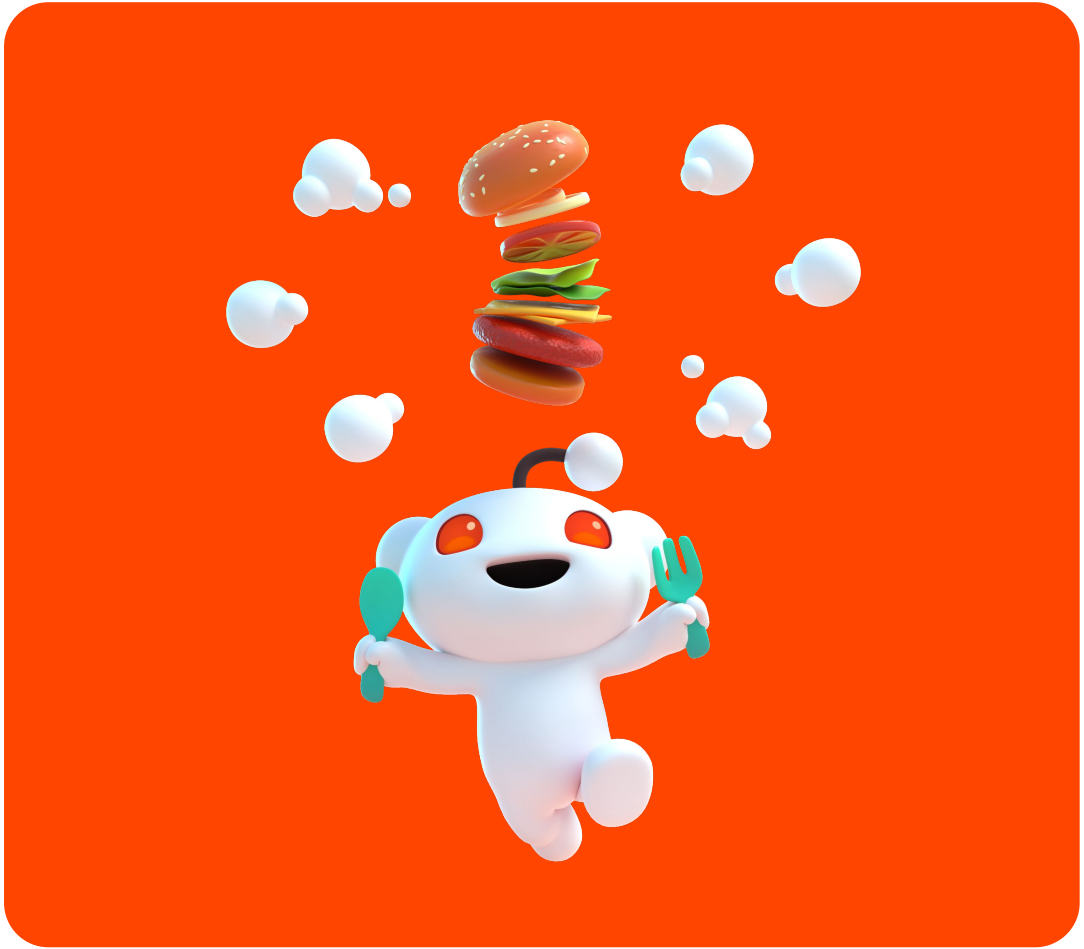
File Contents

What's in this .blend File?

This deck will cover the file setup including:

- The objects which comprise Snoo
- The Snoo rig
- Shape Keys for the iconic smile
- Widgets for the custom UI
- A default lighting set up
- A plane to create warm bounce light
- Material node trees used for snoo. (I don't recommend messing with the eye shaders.
- A custom world data block

The are other miscellaneous geometry node trees and such, but that pretty much covers everything.



How is the File Organized?

The Snoo model is composed of a rigged mesh that uses a combination of bones, constraints, modifiers, drivers, shape keys, and geometry nodes which all work together.

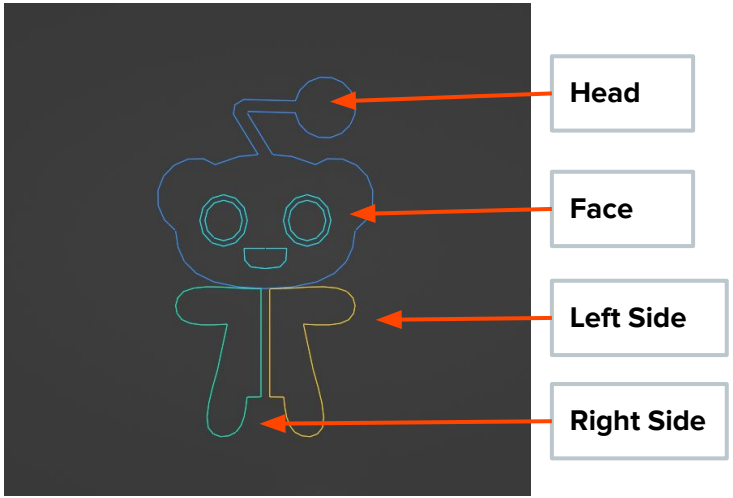
The benefits to this system are that it's flexible, easy to extend, and is great for rendering illustrations using Blender. However, there are downsides. It use a great many systems that are specific to the Blender ecosystem. This means that the model is absolutely not game engine ready, nor is the rig usable in any other 3d software package like Maya or Cinema 4D.

That being said, Reddit will provide a .FBX and .OBJ file if you'd like to build your own rig in your preferred software.

Rig Breakdown

Properties

The “Properties” controls are the collection that floats above the snoo. They contain options which change how the rest of the armature behaves.



There are 4 different properties controls: Head, Face, Left Side, and Right Side.

Head: Controls the behavior of the head, Antenna, and properties that affect both left and right side of the character.

Face: Controls the different eye and mouth options

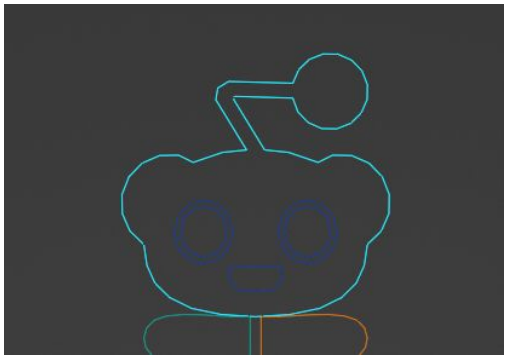
Left/Right Side: Controls IK/FK options for the respective sides.

*The double sided arrow is for a legacy squash and stretch function, but between you and me it’s pretty busted. Best to steer clear of that one.

Head Controller

The Head Property contains 3 options:

- Antenna IK/FK
- Head Damped Track
- Head Torso Follow



Antenna IK/FK: Switch between kinematic modes. 0.0 for Forward Kinematic, 1.0 for Inverse Kinematic. (I find IK to be more useful.)

Head Damped Track: Determines how the Head rotation is controlled. 0.0 for manual rotation by HEAD-ROTATE bone. 1.0 will rotate the head to point to the LOOK-TARGET.

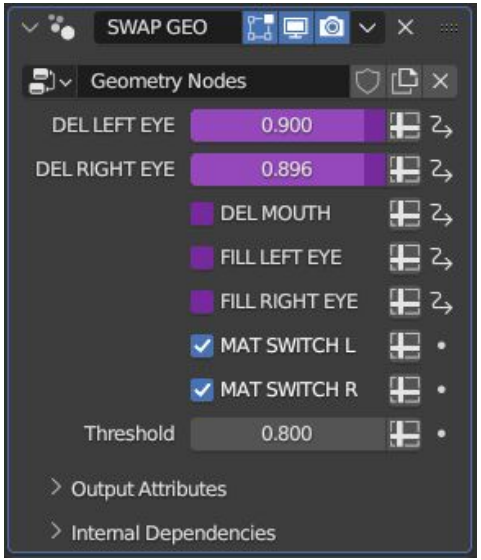
Head Torso Follow: Toggle whether or not the Character head inherits it's rotation from the Torso.

Face Controller I

The Head Property contains 5 options:

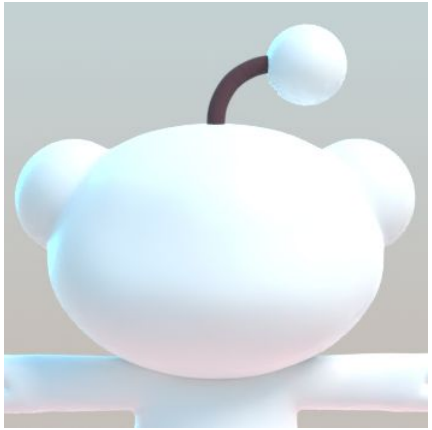
- Blink - L
- Blink - R
- Mask Eyebrows
- Fill Eyes
- Fill Mouth

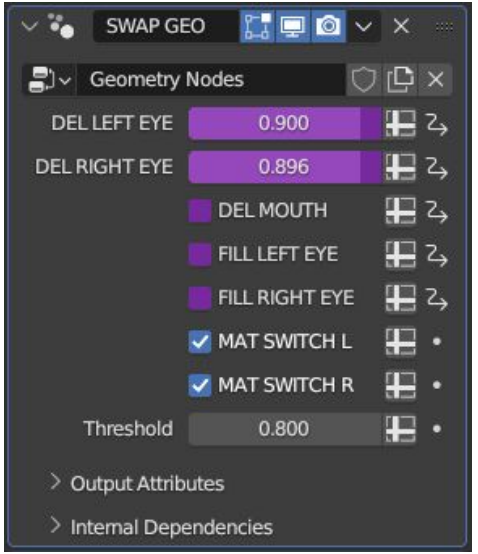
Blink - L/R: These sliders connect to a set of shape keys to make the eyes blink. The switch to change the eye color can be found on the head's geometry nodes inputs.



Face Controller II

Fill Eyes and Mouth: These toggles connect to the the Swap Geo geometry node tree on the head to fill in the mouth and eyes for snoo if you need a completely blank face.





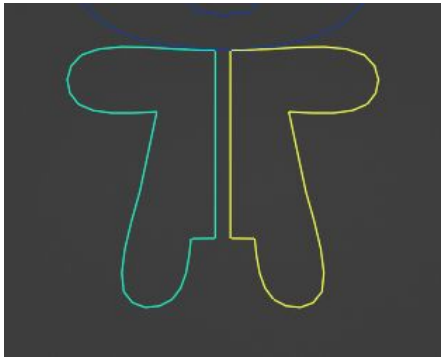
Face Controller III

Mask Eyebrows: These toggles control the visibility of Snoo's eyebrows. Snoo doesn't technically have eyebrows, so use at your own risk.

Right Left Body Controller

The Side Properties are identical and symmetrical. They each have 4 options:

- Arm Follow
- Hip Follow
- IK/FK Arm
- IK/FK Hip



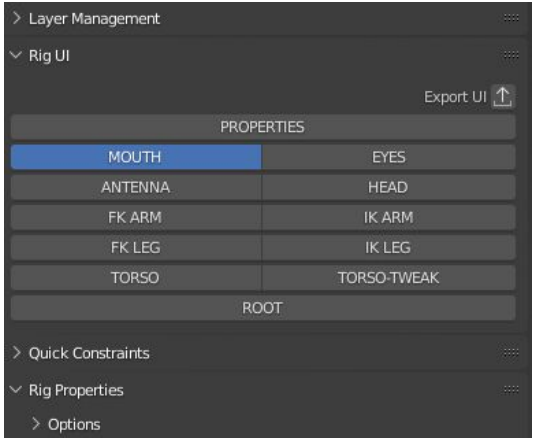
Arm Follow: Toggle whether or not the Arm inherits it's rotation from the Shoulder/Torso. At 0 it will not inherit rotation, at 1 it will inherit rotation.
(I almost always leave this on.)

Hip Follow: Toggle whether or not the Leg inherits it's rotation from the Torso. At 0 it will not inherit rotation, at 1 it will inherit rotation.
(I almost always leave this on.)

IK/FK Arm: Switch between kinematic modes for the arm.
0.0 for Forward Kinematic, 1.0 for Inverse Kinematic.

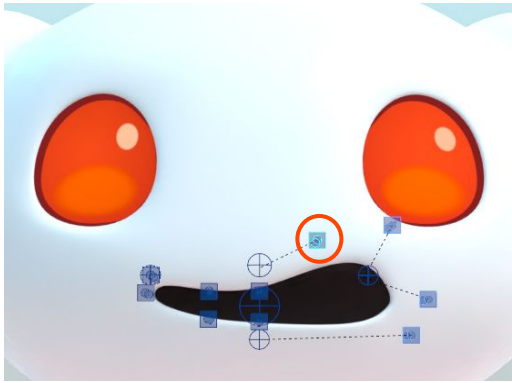
IK/FK Arm: Switch between kinematic modes for the Leg.
0.0 for Forward Kinematic, 1.0 for Inverse Kinematic.

Mouth Controls

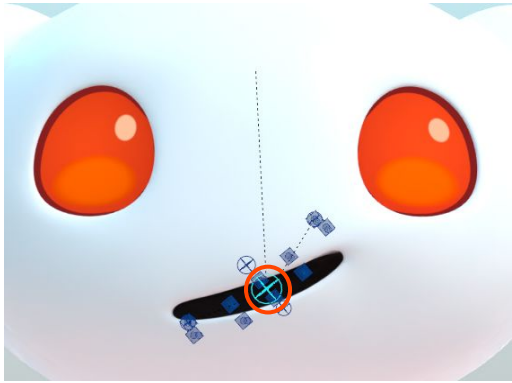


There are two types of controllers used for the mouth: tweak and group controls. Generally, tweak controls move a single vert, while group controls move a collection of tweak controls.

Tweak Control: There are 10 Tweak Controls. These can be used to stretch mouth by translating the various controls.



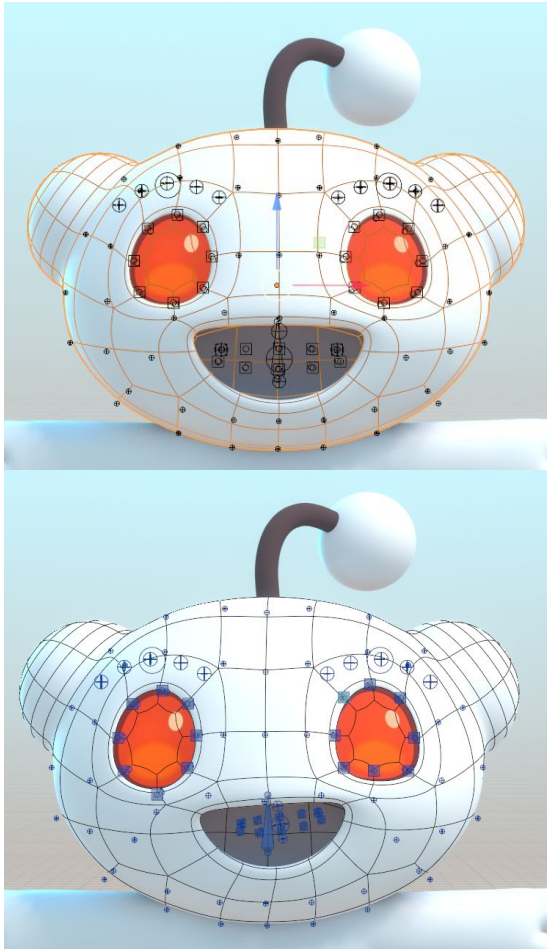
Group Control: The Group Control moves all of the tweak controls for easy translation, rotation, and scaling.



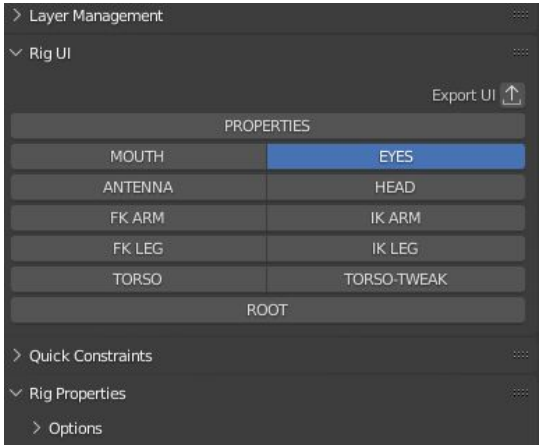
Face Controls

Snoo's expressions can be designed using two systems that may interact with each other. Each vertice on the face is parented to an individual bone. You could use these to create key expressions and save them as discrete actions, and then use a bone with the action constraint to create keyframe animation.

You could also create key expressions using shape keys and then use the bones in the face rig to modify the expression further.

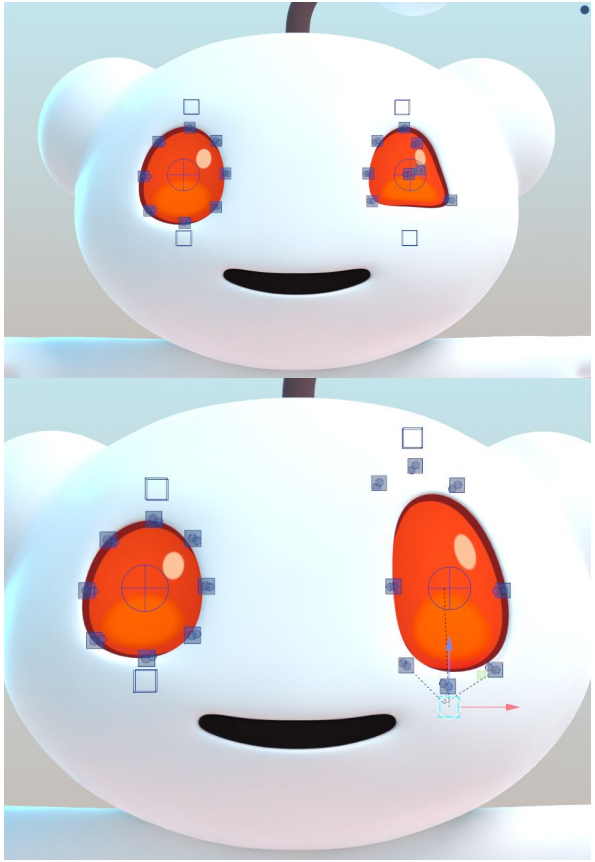


Eye Controls

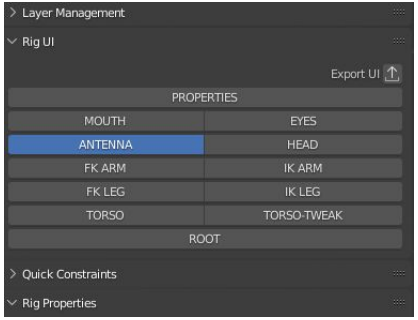


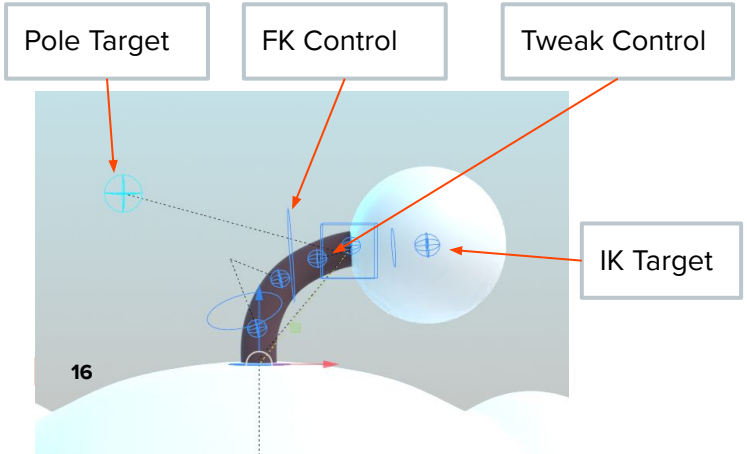
Tweak Control: Each Eye has 8 Tweak Bones. These can be used to adjust the eye shape.
(They cannot be rotated or translated along the Y-Axis)

Group Control: There are 3 group controls. The top and bottom bones control their respective tweak bones, and the bone in the middle bulk control can be use to translate rotate the entire eye.



Antenna Controls



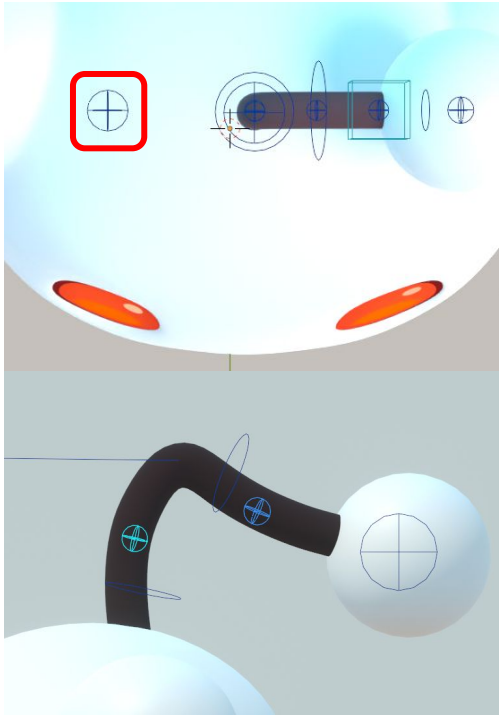


FK Controls: Each control can be rotated to pose the corresponding Antenna segment while the FK property is turned on.

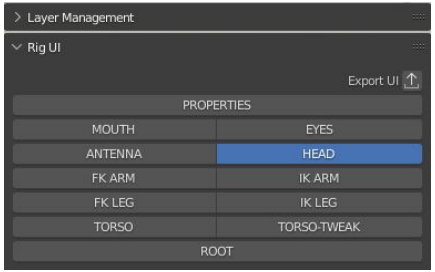
IK Target: The Pom will move to the location of the IK Target while the IK property is turned on. (Cannot be scaled or rotated)

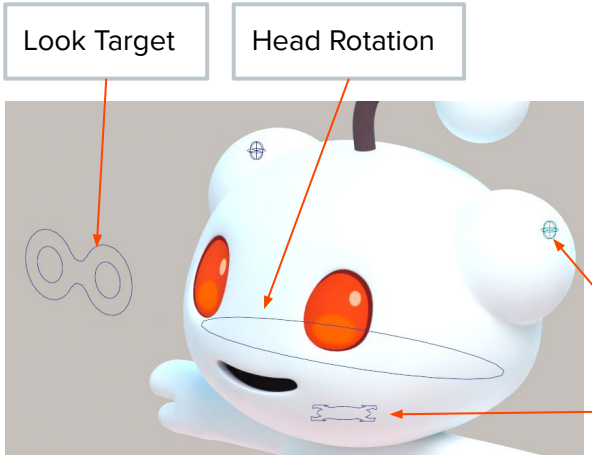
Pole Target: The Antenna Stalk will bend in the direction of the Pole Target while the IK property is turned on. (Cannot be scaled or rotated)

Tweak Control: Tweak Control can be translated to add a curve to the Antenna Stalk. They work in both the IK and FK mode.
(Cannot be scaled or rotated)



Head Controls



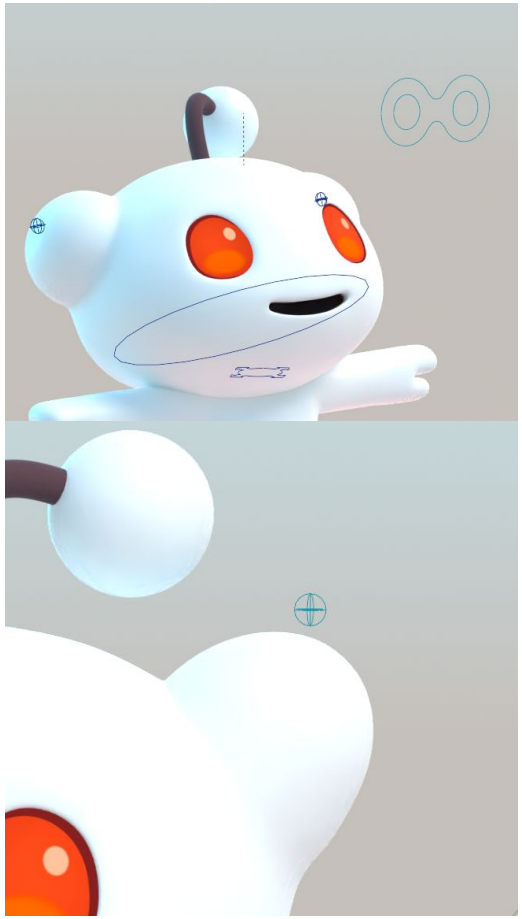


Look Target: The Character Head will “Look” at the control when the “Head Damped Track” property is turned on.

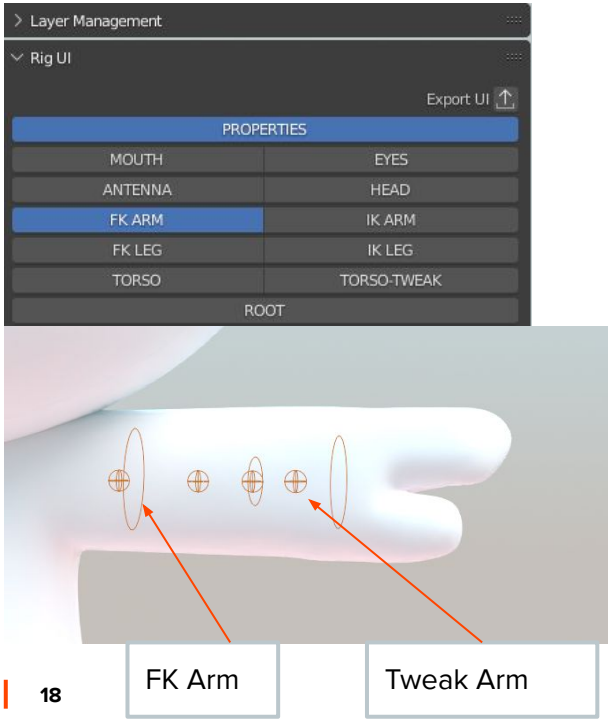
Head Rotation: Used to rotate the character head by itself or with the Look Target. (Cannot be translated or scaled.)

Head Translate: Used to Translate Character Head. (Cannot be rotated or scaled)

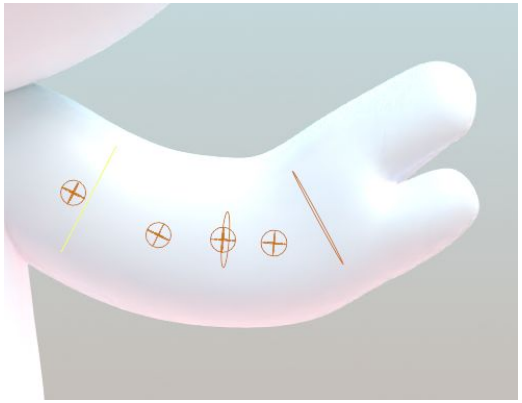
Ear Bounce: These bones are for stretching the ear nubs. They’re mostly used adding a little jiggle to animations.



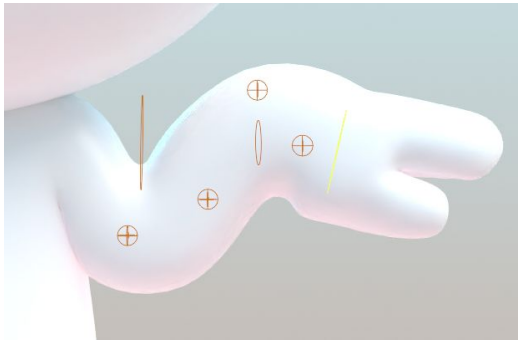
FK Arm Controls



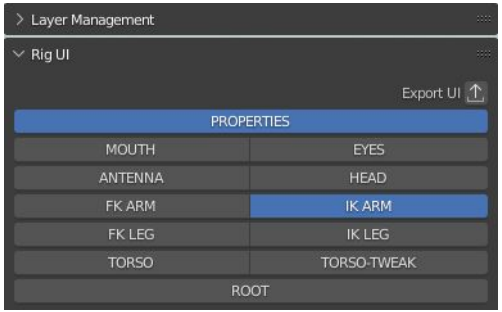
FK Controls: Each control can be rotated to pose the corresponding Arm segment while FK property is turned on.

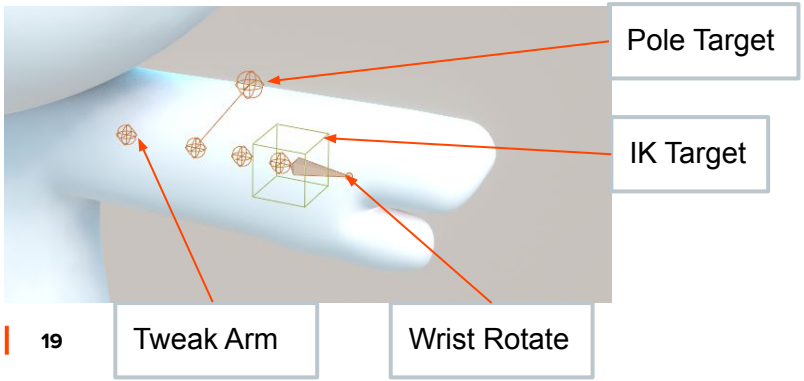


Tweak Control: Tweak Control can be translated to add a curve to the Arm Stalk. They work in both IK and FK mode.
(Cannot be scaled or rotated)



IK Arm Controls



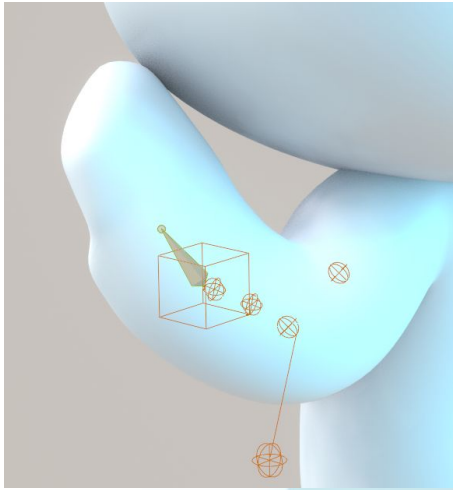


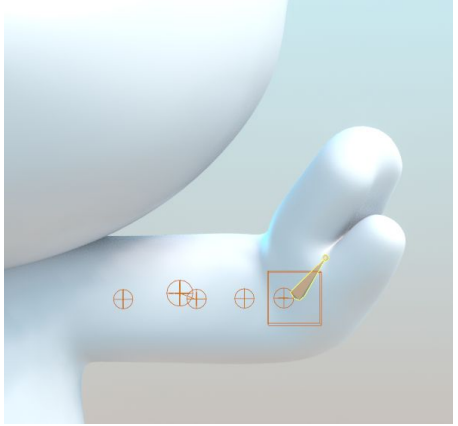
IK Controls: The “hand” will move to the location of the IK Target while IK property is turned on. (Cannot be scaled or rotated)

Pole Target: The elbow will bend in the direction of the Pole Target while IK property is turned on. (Cannot be scaled or rotated)

Tweak Control: Tweak Control can be translated to add a curve to the Anrm Stalk. They work in both IK and FK mode.
(Cannot be scaled or rotated)

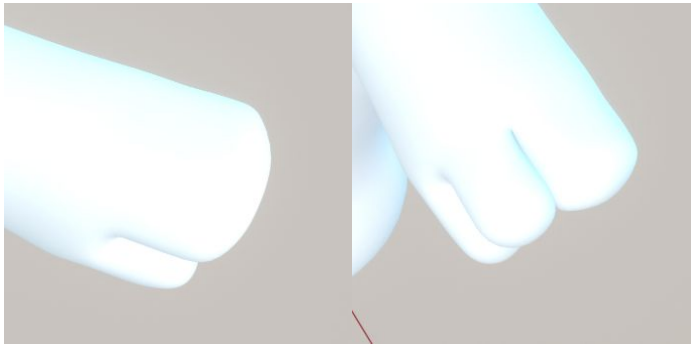
Wrist Rotate: The wrist rotation will follow the forearm it’s connected to by default in IK mode. However you can further adjust it’s rotation this bone.





Hand Controls

There are two types of hands, Mitten and pointer, but they both us the same controls.



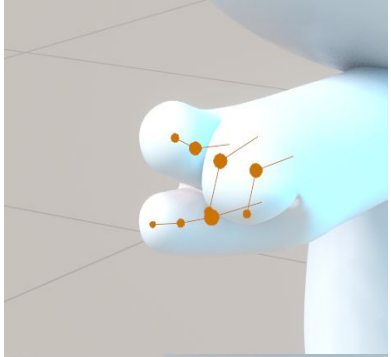
Mitten

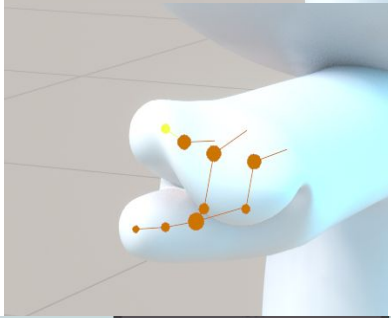
Pointer

Hand Controls: consist of a simple FK chains for the thumb, pointer finger, middle finger, and pinky finger. The pointer hand uses every FK chain, while the mitten hand only uses the pointer and pinky and blender between the two.

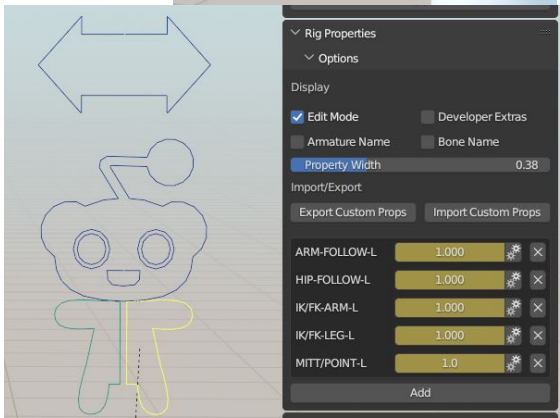
Each chan can be translated, rotated, and scaled.

The mitten is mainly used for neutral poses where the two chains have similar rotations.

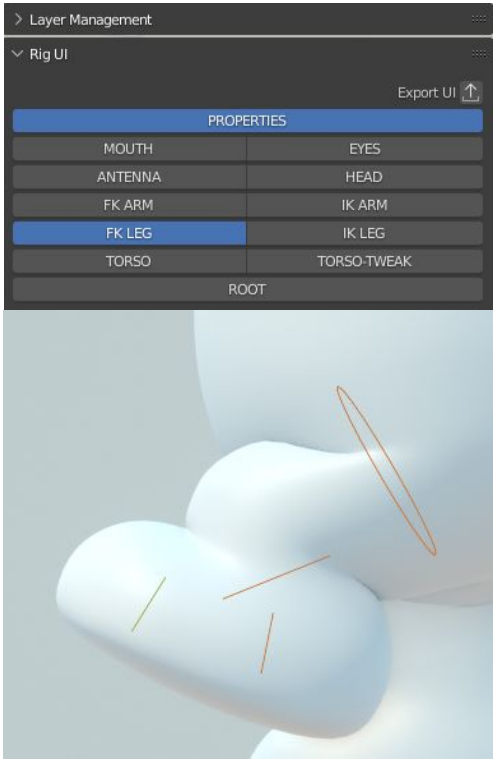




The hand types can be toggled for Left and Right independently using this slider in the body properties bone.

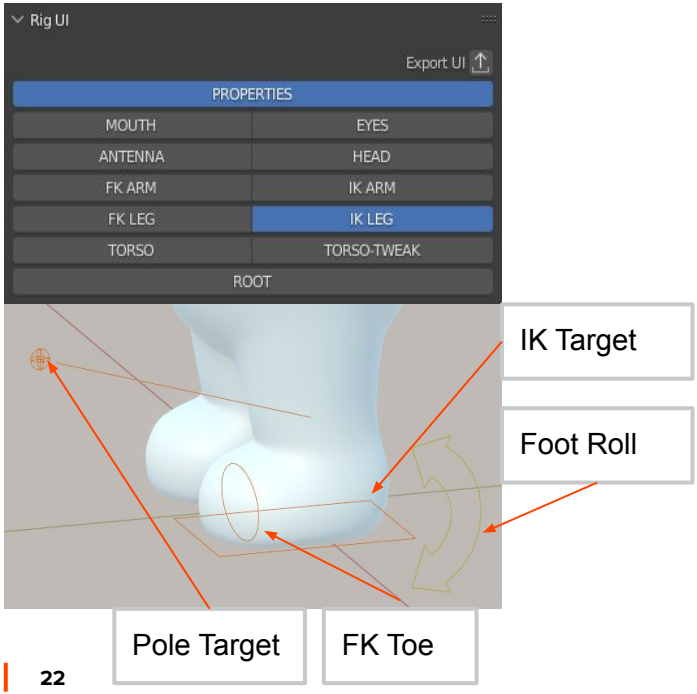


FK Leg Controls



FK Controls: Each control can be rotated to pose the corresponding leg segment while FK property is turned on.

IK Leg Controls

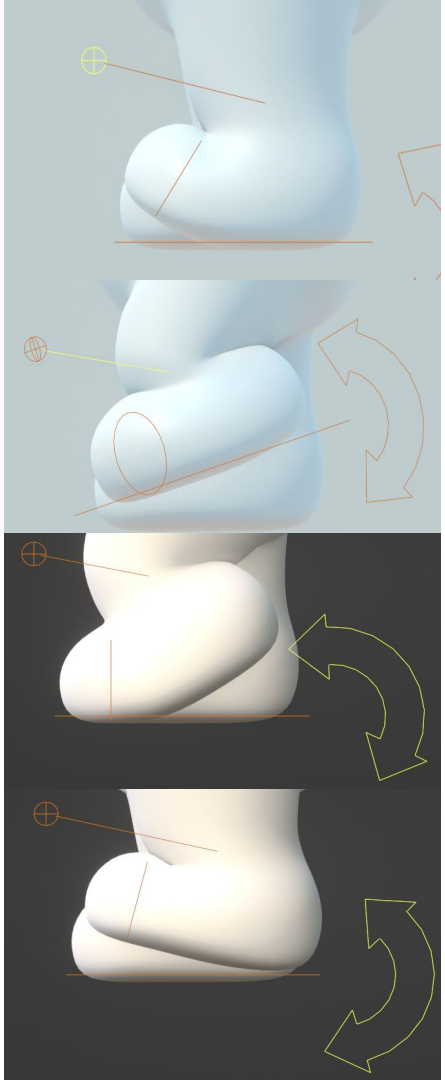


FK Toe: Rotate to control the toe. Cannot be translated, or scaled.

IK Controls: The Foot will move to the location of the IK Target while IK property is turned on. (Cannot be scaled)

Pole Target: The knee will bend in the direction of the Pole Target while IK property is turned on. (Cannot be scaled or rotated)

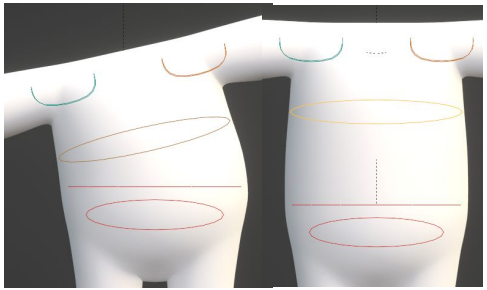
Foot Roll: Rotating this control will rock the foot from heel to toe. The FK does not need to be used to keep contact with the ground. Cannot be rotated or scaled.

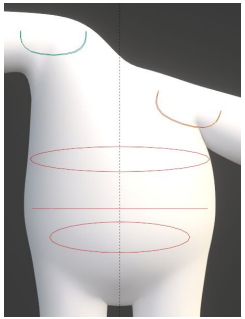


Toro Controls

Torso Handle: Translate and Rotate to control the entire torso. IK Targets are not parented to this control. Cannot be scaled.

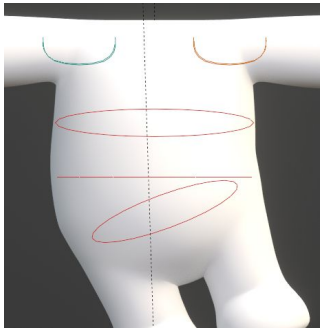
Upper Torso: Translate and Rotate to control the upper body. It inherits the transform of the Torso Handle. Cannot be scaled.



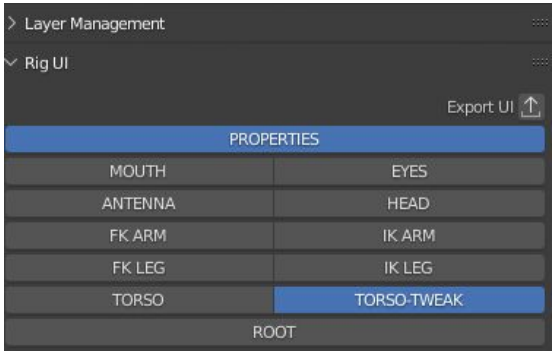


FK Shoulder: Translate and Rotate to control the shoulder. They inherit the upper torso rotation, Cannot be scaled.

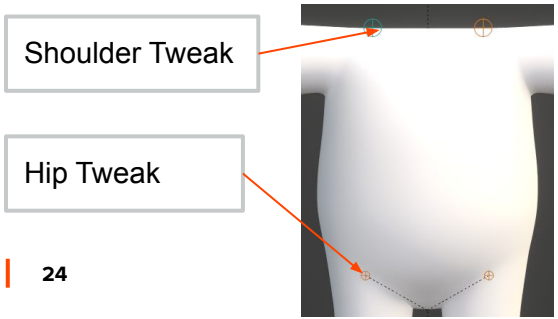
Lower Torso: Translate and Rotate to control the lower body. It inherits the transform of the Torso Handle. Cannot be scaled.



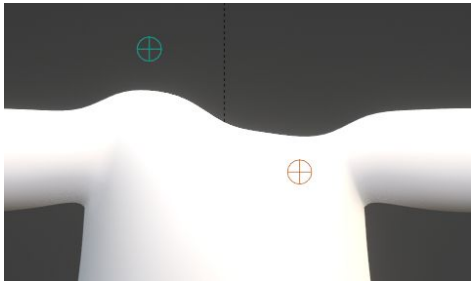
Torso Tweak Controls I



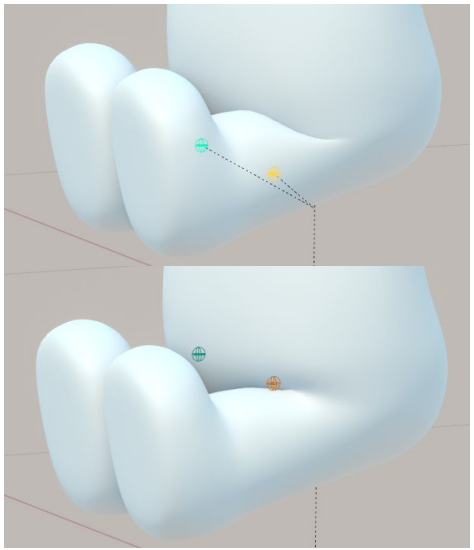
There are six types of Tweak Controllers



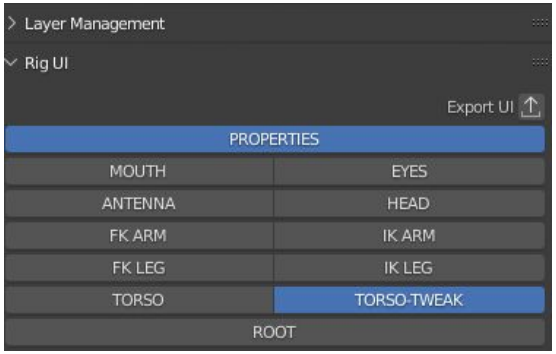
Shoulder Tweak: Translate to correct shoulder shape and placement. They Inherit position from FK Shoulder Controls. They Cannot be scaled.



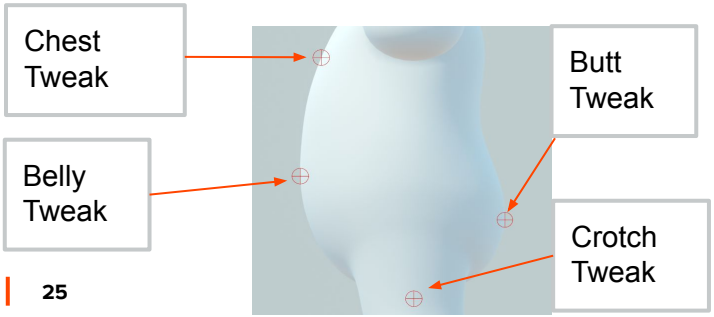
Hip Tweak: Translate to correct the shape of the lower torso while in a seated position. (Decrease the crease). They inherit their transforms from the lower torso. Cannot be rotated or scaled.



Torso Tweak Controls II

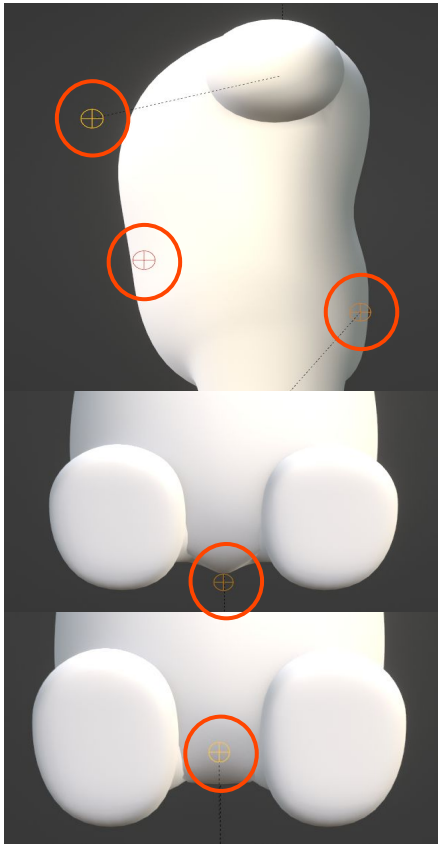


There are six types of Tweak Controllers

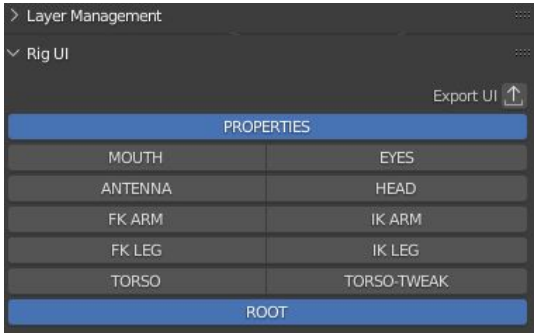


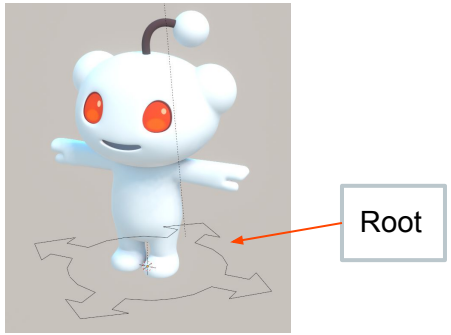
Chest/ Belly/ ButtTweak: Can be translated and rotated to adjust the torso Silhouette.

Crotch Tweak: Can be translated to correct the shape of the crotch in a sitting position. Cannot be rotated or scaled.

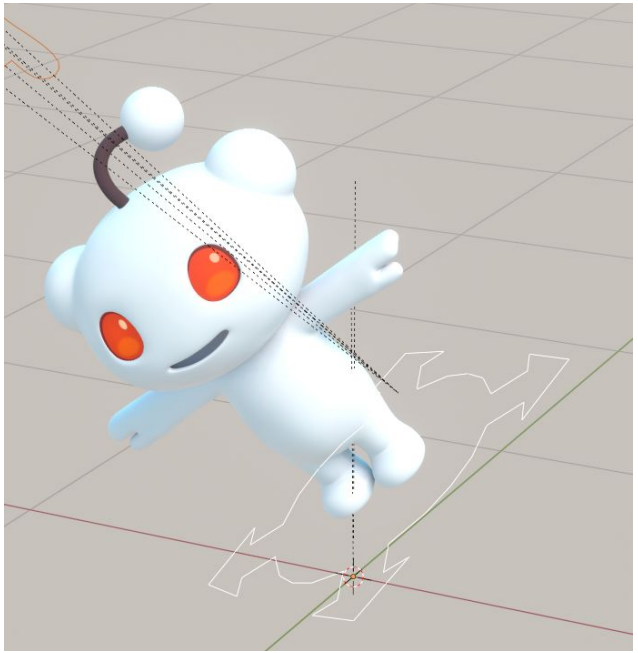


Root Control





Root: Can be translated, rotated, and scaled to adjust the entire rig and character.



Thank you